# NorDig Unified Test Plan - Addendum for HbbTV Tests

**for**

**Integrated Receiver Decoders**

**for use in cable, satellite, terrestrial and IP-based networks**

NorDig Unified Test plan, ver 2.5.0 - HbbTV Addendum 1.0

# 1 Document History

| Version | Date | Comments |
|---------|------|----------|
| Ver 1.0 | 12.2016 | This is the first approved version of the complete NorDig Unified Test specification – Addendum for HbbTV tests |

# 2 References

This test specification is related to the following documents:

[1] NorDig Unified Test plan for Integrated Receiver Decoders, Version 2.5.0.

[2] HbbTV Test Suite, the most recent released version published by HbbTV applicable to IRD implementing. The most recent released version published by HbbTV refers here to the latest version that was available up to 9 month before the IRD is released/launched, in order to give manufacture time for their QA verification and test process.
(Note, HbbTV organisation normally only keep latest version available and at time of writing the latest version is 9.1).

# 3 Task 16: IRD System Software and API

## 3.1 Introduction

This addendum specifies the additional test plans related to the NorDig Hybrid IRD. These test cases are additional to the NorDig Test Plan for  for Integrated Receiver Decoders for use in cable, satellite, terrestrial and IP-based networks [1].

Verified passing of the latest HbbTV official test suite [2] is a mandatory requirement for all NorDig Hybrid IRD profiles. The implementation of the HbbTV in the NorDig Hybrid IRD shall be verified by the manufacturer, i.e. the verification testing is based on self-testing by the manufacturer unless otherwise specified by the relevant network/Operator.

NorDig broadcast member may request to get a copy of the manufacture's HbbTV Verification Test report with test results, before approving a Hybrid IRD on the market.

> Informative: The official HbbTV Test suite of the HbbTV Association (http://hbbtv.org) consists of a huge number of test cases, some of which the HbbTV Association has defined as mandatory and some as optional. The optional cases can be referred to as "additional test material". Some of these optional test cases have been contributed by NorDig and some by other testing regimes.

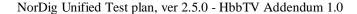NorDig mandates that NorDig Hybrid IRDs shall pass:
- all test cases that are included in the latest HbbTV test suite and which HbbTV organisation has defined as mandatory
- a number of additional test cases that are included in the latest HbbTV standard test suite but which HbbTV Association has defined as optional/additional test material. These test cases are included in the list of Test Cases below. (Please Note that these test cases might be optional in standard HbbTV Test Suite and in other markets)
- a number of NorDig defined HbbTV test cases which are only included in this NorDig Test Plan.

The current HbbTV Test Suite is available from HbbTV association and it provides a set of test material to test HbbTV device implementations. It is suitable for manufacturers of devices, including hardware and software components implementing the HbbTV specification. For information on how to obtain the HbbTV Test Suite, device manufacturer should refer to http://hbbtv.org/resource-library/#testing-information-and-support.

NorDig has contributed into HbbTV organisation with all our NorDig-developed test cases (including test material) and these are available from the HbbTV organisation's Test Repository as "additional test material". It is recommended to use this alternative. For any party who is unable to access the HbbTV Test Repository to obtain the Nordig HbbTV Test Materials, these can be obtained via the Nordig website (http://www.nordig.org) as well, free of charge, but subject to accepting the Nordig Test Suite Licence Agreement (available from the Nordig website). The approved Nordig HbbTV Test Suite is identical on both sources.

Running the test cases requires access to the HbbTV Minimum Test Harness, a commercial harness or the Nordig Helper App. The latter is a tool for running the tests and obtaining the results in a meaningful way. Note that the Nordig Helper App enables only the tests designated with «org.nordig» domain to be run.

Please note that currently the Minimum Test Harness is able to run only the tests that are approved to the official HbbTV Test Suite. CI+ test cases are also mandatory to pass as they are approved to the official HbbTV Test Suite. To run the CI+ tests, a test CAM which is compatible with the test harness will be needed. This is likely to either be available through the provider of your commercial test harness, or in the case of the Minimum Test Harness from Eurofins Digital Testing. Please contact DigitalTestingSupport@eurofins.com for assistance in running the CI+ tests in the Minimum Test Harness. The Nordig HbbTV Test Suite includes the materials for tasks 16:1 to 16:59.

National testing regimes, operators and broadcasters define the final requirements for any regional certification process, and these might include additional test suites and test cases (for example DRM tests). Additional test materials are available from the latest release of the HbbTV Test Suite or from the entity organizing the testing regime. The chapter and table 2.16.2. define the test tasks that are by default mandatory to pass to pass the Nordig Test Suite part of any national regime.

Development of the Nordig Test cases is a continuous process and can be tracked in HbbTV Redmine system under the «Nordig API» -group. Redmine system can be reached from https://hbbtv.org/redmine/projects/nordig-api-group.

Detailed test task procedures are not repeated here – they can be accessed by refering to the xml test description files and they are visible in the RUT and PC computer screen running the test harness while executing the tests.

# 4 List of test cases

All NorDig Hybrid IRDs shall in addition to the HbbTV's mandatory test cases also pass following listed test cases defined within the HbbTV test suite and in the current chapter below:

| NorDig Test Task | NorDig IRD Profile | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Test Task | STB | IDTV | Basic | Hybrid | PVR | DVB-S | DVB-S2 | DVB-C | DVB-T | DVB-T2 |
| 2.16 Task 16: IRD System software and API | - | - | - | - | - | - | - | - | - | - |
| Task 16:1 org.nordig_00000010 Current time, TDT/TOT available, NTP available | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:2 org.nordig_00000020 Current time, no TDT/TOT tables, NTP available | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:3 org.nordig_00000030 Current time, no TDT/TOT tables, no NTP, but SNTP is available | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:4 org.nordig_00000100 parental control, blocking application | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:5 org.nordig_00000300 EBU teletext, no HbbTV teletext | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:6 org.nordig_00000310 HbbTV teletext, no EBU teletext | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:7 org.nordig_00000320 EBU teletext and HbbTV teletext | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:8 org.nordig_00000330 EBU Teletext, HbbTV teletext signalled but not available | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:9 org.nordig_00000340 No EBU Teletext, no HbbTV teletext | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:10 org.nordig_00000350 No EBU teletext, HbbTV teletext signalled but not available | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:11 org.nordig_00000400 EBU subtitles over broadband TS, A/V object, no scaling | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:12 org.nordig_00000410 EBU subtitles over broadband TS, A/V object scaled down | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:13 org.nordig_00000420 EBU subtitles over broadband TS, A/V object scaled up | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:14 org.nordig_00000430 DSM-CC stream events and DVB subtitles | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:15 org.nordig_00000440 DSM-CC stream events and EBU subtitles | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:16 org.nordig_00000500 Broadcast video scaling, 1 x 1 | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:17 org.nordig_00000510 Broadband TS video scaling, 1 x 1 | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:18 org.nordig_00000520 Broadband MP4 video scaling, 1 x 1 | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:19 org.nordig_00000600 EIT P/F, characters | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:20 org.nordig_00000610 EIT MetadataSearch, characters | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:21 org.nordig_00001010 Exit button on broadcast independent application: restore broadcast video | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:22 org.nordig_00001020 Exit button: restore broadcast video from PIP mode | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:23 org.nordig_00001050 Setting of preferredUILanguage | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:24 org.nordig_00001060 Updating preferredUILanguage after language change in Navigator | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:25 org.nordig_00001070 Switch subtitles: DVB to EBU teletext | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:26 org.nordig_00001080 Switch subtitles: EBU teletext to DVB | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:27 org.nordig_00001081 Switch subtitles over broadband TS: EBU teletext to DVB | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:28 org.nordig_00001082 Switch subtitles over broadband TS: DVB teletext to EBU | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:29 org.nordig_00001100 Disabling subtitles | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:30 org.nordig_00001101 Disabling subtitles over broadband TS | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:31 org.nordig_00001200 DVB subtitles - V/B Object not bound to current channel | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:32 org.nordig_00001210 DVB subtitles - V/B Object bound to current channel | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:33 org.nordig_00001220 EBU Teletext subtitles: Video/Broadcast Object not bound to current channel | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:34 org.nordig_00001230 EBU Teletext subtitles: Video/Broadcast Object bound to current channel | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:35 org.nordig_00001240 DVB subtitles placed behind application, V/B Object not bound to current channel | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:36 org.nordig_00001250 DVB subtitles placed behind application, V/B Object bound to current channel | - | - | - | Shall | - | - | - | - | - | - |

| NorDig Test Task | NorDig IRD Profile | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Test Task | STB | IDTV | Basic | Hybrid | PVR | DVB-S | DVB-S2 | DVB-C | DVB-T | DVB-T2 |
| Task 16:37 org.nordig_00001260 EBU Teletext subtitles behind application, V/B Object not bound to current channel | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:38 org.nordig_00001270 EBU Teletext subtitles behind application, V/B Object bound to current channel | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:39 org.nordig_00001280 DVB subtitles, V/B object scaled down (1/4 x 1/4) | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:40 org.nordig_00001290 DVB subtitles, V/B object scaled up ( 2 x 2 ) | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:41 org.nordig_00001300 DVB subtitles behind application, V/B object scaled down ( 1/4 x 1/4 ) | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:42 org.nordig_00001310 DVB subtitles behind application V/B object scaled up ( 2 x 2 ) | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:43 org.nordig_00001320 EBU Teletext subtitles, V/B object scaled down (1/4 x 1/4) | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:44 org.nordig_00001330 EBU Teletext subtitles, V/B object scaled up ( 2 x 2 ) | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:45 org.nordig_00001340 EBU Teletext subtitles behind application, V/B object scaled down ( 1/4 x 1/4 ) | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:46 org.nordig_00001341 EBU Teletext subtitles over broadband TS behind application, A/V object scaled down (1/4x1/4) | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:47 org.nordig_00001350 EBU Teletext subtitles behind application, V/B object scaled up ( 2 x 2 ) | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:48 org.nordig_00001400 DVB subtitles, A/V object - no scaling | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:49 org.nordig_00001410 DVB subtitles, A/V object scaled down | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:50 org.nordig_00001420 DVB subtitles, A/V object scaled up ( 2 x 2 ) | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:51 HbbTV global setting | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:52 es.tdthibrida_7D7C0040 Broadband DVB subtitles in a TS are displayed | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:53 es.tdthibrida_7D7C0050 Broadband Teletext subtitles in a TS are displayed | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:54 es.tdthibrida_7D7C0060 Broadband Subtitles Below Application Graphics | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:55 fr.hdforum_00151240 EXIT function is provided by receiver | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:56 fr.hdforum_00151250 Termination of autostart application using EXIT function | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:57 fr.hdforum_00151260 Termination of non-autostart broadcast-related application using EXIT function | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:58 es.tdthibrida_7D7C0070 Auto-start applications enabled by default | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:59 fr.hdforum_00151000 Application launching with network connection available | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:60 Teletext - Simultaneous EBU Teletext and HbbTV Digital Teletext (8:6) | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:61 Subtitling - coexistent with HbbTV applications (8:7) | - | - | - | Shall | - | - | - | - | - | - |
| Task 16:62 Remote Control Key event mapping for NorDig Hybrid (9:11) | - | - | - | Shall | - | - | - | - | - | - |

## 4.1 Test cases

| Test Case | **Tasks 16:1 – 16:50** |
|---|---|
| **Section** | Multiple (see test case descriptions) |
| **Requirement** | Multiple (see test case descriptions) |
| **IRD Profile(s)** | Hybrid |
| **Test procedure** | Purpose of test:<br>See the test case description from the Test Harness / Helper app UI<br><br>Equipment:<br>HbbTV Test Harness or NorDig Test Suite helper app<br><br>Test procedure:<br>Run the test using the Test Harness or helper app. Follow the on-screen instructions.<br><br>Expected result:<br>PASS |
| **Test result(s)** | Test Harness returns PASS [OK] or FAIL [Fault], mark the result below. |
| **Conformity** | ☐ **OK [PASS]**              ☐ **Fault [NOT OK]** |
| **Comments** | If possible describe if fault can be fixed with software update: ☐**YES**☐**NO**<br>Describe more specific faults and/or other information |
| **Date** | | **Sign** | |

| Test Case | **Task 16:51 HbbTV Global setting** |
|---|---|
| **Section** | Nordig Unified 15.2 |
| **Requirement** | The NorDig Hybrid IRD shall have HbbTV feature as enabled by default (see Section 16.3). It shall have a menu option to allow user to enable / disable the HbbTV feature as a whole and it should have a menu option to allow user to enable / disable the HbbTV feature service by service. |
| **IRD Profile(s)** | Hybrid |
| **Test procedure** | Purpose of test:<br>Verify that the IRD has an option to turn HbbTV on and off globally.<br><br>Equipment:<br>IRD under test.<br>Stream with a HbbTV application signalled.<br><br>Test procedure:<br>    1. Turn HbbTV setting OFF<br>    2. Check that HbbTV application is not launched.<br>    3. Turn HbbTV setting ON<br>    4. Check that HbbTV application is launched.<br><br>Expected result:<br>PASS |
| **Test result(s)** | [OK] or FAIL [Fault], mark the result below. |
| **Conformity** | ☐ **OK Fault** ☐ Major ☐ Minor, define fail reason in comments |
| **Comments** | If possible describe if fault can be fixed with software update: ☐**YES** ☐**NO**<br>Describe more specific faults and/or other information |
| **Date** | | **Sign** | |

| Test Case | **Tasks 16:52 – 16:59 (es.TDThibrida and fr.HDForum tests)** |
|---|---|
| **Section** | Multiple (see test case descriptions) |
| **Requirement** | Multiple (see test case descriptions) |
| **IRD Profile(s)** | Hybrid |
| **Test procedure** | Purpose of test:<br>See the test case description from the Test Harness.<br><br>Equipment:<br>HbbTV Test Harness.<br><br>Test procedure:<br>Run the test using the Test Harness. Follow the on-screen instructions.<br><br>Expected result:<br>PASS |
| **Test result(s)** | Test Harness returns PASS [OK] or FAIL [Fault], mark the result below. |
| **Conformity** | ☐ **OK [PASS]**      ☐ **Fault [NOT OK]** |
| **Comments** | If possible describe if fault can be fixed with software update: ☐**YES** ☐**NO**<br>Describe more specific faults and/or other information |
| **Date** | | **Sign** | |

| Test Case | **Task 16:60 Teletext - Simultaneous EBU Teletext and HbbTV Digital Teletext (8:6)** |
|---|---|
| Section | NorDig Unified 7.1.6 |
| Requirement | For services that have both an EBU Teletext service and an HbbTV Digital Teletext application signaled and available, the NorDig Hybrid shall (1) be able to start and display the HbbTV Digital Teletext application as well as being able to start and display the EBU Teletext service (one at a time). <br> The NorDig Hybrid shall (1) start teletext and be able to toggle between any HbbTV Digital Teletext and any EBU Teletext service as described in clause 5.3.4 of HbbTV specification ETSI TS 102 796. |
| IRD Profile(s) | Hybrid |
| Test procedure | **Purpose of test:** <br> To verify that the IRD is able to start EBU Teletext and HbbTV Digital Teletext (one at the time). <br> A transport stream containing a test services with EBU Teletext and HbbTV Digital Telext application is required. <br><br> **Test procedure:** <br> 1. Tune to a serve that contains both EBU Teletext and HbbTV Digital Teletext application. <br> 2. Verify that the user can toggle between EBU Teletext and HbbTV Digital Teletext application by pressing the "text" button in the RCU. <br><br> **Expected result:** <br> User can toggle between EBU Teletext and HbbTV Digital Teletext application. |
| Test result(s) | [OK] or FAIL [Fault], mark the result below. |
| Conformity | ☐**OK Fault**  ☐ Major ☐ Minor, define fail reason in comments |
| Comments | If possible describe if fault can be fixed with software update: ☐**YES**☐**NO** <br> Describe more specific faults and/or other information |
| Date |  | Sign | |

| Test Case | **Task 16:61 Subtitling - coexistent with HbbTV applications (8:7)** |
|---|---|
| Section | NorDig Unified 7.1.7 |
| Requirement | A NorDig Hybrid shall support simultaneous display of HbbTV application and subtitles (DVB subtitling and EBU teletext subtitling), both for broadcast and at least for MPEG2 TS delivered via broadband [29]. <br><br> The NorDig Hybrid shall display the HbbTV application over the subtitles as described in clause 10.1.1 of HbbTV specification ETSI TS 102 796 [30]. This means that if the video is up or down-converted, to other than full screen video, the subtitles shall either be rescaled/repositioned appropriately or not displayed at all. |
| IRD Profile(s) | Hybrid |
| Test procedure | **Purpose of test**: <br> To verify that DVB and EBU teletext subtitling can coexists with HbbTV applications. <br><br> A transport stream containing a test service with DVB and EBU teletext composition subtitling component and at least one signaled service bound HbbTV application at the |

| | same channel. |
|---|---|
| | **Test procedure:**<br>1. set the IRD to the autostart mode for the HbbTV services and eansure that subtitles are enabled<br>2. search channels<br>3. zap to a channel that contains the HbbTV service and subtitles<br>4. verify that when the HbbTV application is not using the same graphics plane or area of the plane as the subtitles, the subtitles are visible<br><br>**Expected result:**<br>The subtitles are visible with a HbbTV application, when they are not sharing the same area of the graphics plane. |
| *Test result(s)* | [OK] or FAIL [Fault], mark the result below. |
| *Conformity* | ☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments |
| *Comments* | If possible describe if fault can be fixed with software update: ☐**YES**☐**NO**<br>Describe more specific faults and/or other information |
| *Date* | | *Sign* | |

| *Test Case* | ***Task 16:62 Remote Control Key event mapping for NorDig Hybrid (9:11)*** |
|---|---|
| *Section* | NorDig 8.7.2.6 |
| *Requirement* | The NorDig Hybrid IRD shall generate (HbbTV) events according to Table 8.3 when a key is pressed on the NorDig IRD remote control. |
| *IRD Profile(s)* | Hybrid |
| *Test procedure* | **Test procedure:**<br>Check the manufacturer technical specification / compliance list or verify the remote control functions.<br><br>**Expected result:**<br>The minimum hardware requirement is fulfilled. |
| *Test result(s)* | [OK] or FAIL [Fault], mark the result below. |
| *Conformity* | ☐**OK Fault** ☐ Major ☐ Minor, define fail reason in comments |
| *Comments* | If possible describe if fault can be fixed with software update: ☐**YES**☐**NO**<br>Describe more specific faults and/or other information |
| *Date* | | *Sign* | |